

AMENDMENTS TO THE CLAIMS

1. (Currently amended) In a communications network including a client and a query server computer, a method for finding at least one best fare for a trip, the method comprising:

at the query server computer, in response to a fare query received from the client application:

determining a set of partial fare solutions for the trip;

adding trip information to the partial fare solutions in order to define a set of complete fare solutions for the trip;

as trip information is added to the partial fare solutions, eliminating partial fare solutions that are non-optimal partial solutions, wherein said partial fare solutions are eliminated based on a threshold cost determined, at least in part, according to the travel time of said partial fare solutions; [[and]]

determining whether a predetermined number of complete fare solutions have been found and repeatedly increasing the threshold cost and carrying out the above recited steps of determining, adding, and eliminating using the increased threshold cost until the predetermined number of complete fare solutions has been found; and

returning a subset of said complete fare solutions as the best fares for the trip.

2. (Previously presented) The method of claim 1, wherein adding trip information comprises:

supplying the fare query to a root node in a solution tree;

assigning fare components corresponding to said root node to a plurality of first nodes;

assigning at least one carrier corresponding to said first nodes to a plurality of second nodes;

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assigning at least one flight corresponding to said second nodes to a plurality of third nodes;

assigning at least one priceable unit corresponding to said third nodes to a plurality of fourth nodes; and

assigning at least one fare corresponding to said fourth nodes to a plurality of leaf nodes.

3. (Original) The method of claim 1, wherein said subset of complete fare solutions is a predetermined number of lowest cost fare solutions.

4. (Original) The method of claim 1, wherein said subset of complete fare solutions is an exhaustive set of said complete fare solutions.

5. (Original) The method of claim 1, wherein adding trip information and eliminating partial fare solutions are performed in a recursive manner.

6. (Original) The method of claim 1, wherein adding trip information and eliminating partial fare solutions are performed in an iterative manner.

7. (Canceled)

8. (Original) The method of claim 1, wherein said partial fare solutions are eliminated based on a refined lower bound.

9. (Original) The method of claim 1, wherein said partial fare solutions are stored in a priority queue.

10. (Original) The method of claim 1, wherein said complete fare solutions are retrieved from a priority queue.

11. (Original) The method of claim 1, wherein adding trip information and eliminating partial fare solutions are performed as part of a branch-and-bound best fare search routine.

12. (Original) The method of claim 1, wherein adding trip information and eliminating partial fare solutions are performed both backward and forward from a destination and origin.

13. (Currently amended) A computer-readable medium containing computer-executable instructions, which, when executed by a query server in response to a fare query, carry out the method for finding at least one best fare for a trip, comprising:

determining a set of partial fare solutions for the trip;

adding trip information to the partial fare solutions in order to define a set of complete fare solutions for the trip;

as trip information is added to the partial fare solutions, eliminating partial fare solutions that are non-optimal partial solutions, wherein said partial fare solutions are eliminated based on a threshold cost determined, at least in part, according to the travel time of said partial fare solutions;

determining whether a predetermined number of complete fare solutions have been found, and [[if not:]] repeatedly increasing the threshold cost[[;]] and ~~repeating~~ carrying out the above recited steps of determining, adding, and eliminating using the increased threshold cost [[;]] until the predetermined number of complete fare solutions has been found; and

returning a subset of said complete fare solutions as the best fares for the trip.

14. (Previously presented) The computer-readable medium of claim 13, wherein adding trip information comprises:

supplying the fare query to a root node in a solution tree;
assigning fare components corresponding to said root node to a plurality of first nodes;
assigning at least one carrier corresponding to said first nodes to a plurality of second nodes;
assigning at least one flight corresponding to said second nodes to a plurality of third nodes;
assigning at least one priceable unit corresponding to said third nodes to a plurality of fourth nodes; and
assigning at least one fare corresponding to said fourth nodes to a plurality of leaf nodes.

15. (Previously presented) The computer-readable medium of claim 13, wherein said subset of complete fare solutions is a predetermined number of lowest cost fare solutions.

16. (Previously presented) The computer-readable medium of claim 13, wherein said subset of complete fare solutions is an exhaustive set of said complete fare solutions.

17. (Previously presented) The computer-readable medium of claim 13, wherein adding trip information and eliminating partial fare solutions are performed in a recursive manner.

18. (Previously presented) The computer-readable medium of claim 13, wherein adding trip information and eliminating partial fare solutions are performed in an iterative manner.

19. (Canceled)

20. (Previously presented) The computer-readable medium of claim 13, wherein said partial fare solutions are eliminated based on a refined lower bound.

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21. (Previously presented) The computer-readable medium of claim 13, wherein said partial fare solutions are stored in a priority queue.

22. (Previously presented) The computer-readable medium of claim 13, wherein said complete fare solutions are retrieved from a priority queue.

23. (Previously presented) The computer-readable medium of claim 13, wherein adding trip information and eliminating partial fare solutions are performed as part of a branch-and-bound best fare search routine.

24. (Previously presented) The computer-readable medium of claim 13, wherein adding trip information and eliminating partial fare solutions are performed both backward and forward from a destination and origin.

25. (Currently amended) A query server apparatus in a communications network for finding at least one best fare for a trip in response to a fare query, the apparatus comprising:

a processor; and

a memory, coupled to the processor, storing program code which, when executed by the processor and in response to the fare query, causes the query server apparatus to:

determine a set of partial fare solutions for the trip;

add trip information to the partial fare solutions in order to define a set of complete fare solutions for the trip;

as trip information is added to the partial fare solutions, eliminate partial fare solutions that are non-optimal partial solutions, wherein said partial fare solutions are eliminated based on a threshold cost determined, at least in part, according to the travel time of said partial fare solutions; [[and]]

determine whether a predetermined number of complete fare solutions have been found, and repeatedly increase the threshold cost and carry out the above recited functions of determining, adding, and eliminating using the increased threshold cost until the predetermined number of complete fare solutions has been found; and

return a subset of said complete fare solutions as the best fares for the trip.

26. (Previously presented) The apparatus of claim 25, wherein adding trip information comprises:

supplying the fare query to a root node in a solution tree;

assigning fare components corresponding to said root node to a plurality of first nodes;

assigning at least one carrier corresponding to said first nodes to a plurality of second nodes;

assigning at least one flight corresponding to said second nodes to a plurality of third nodes;

assigning at least one priceable unit corresponding to said third nodes to a plurality of fourth nodes; and

assigning at least one fare corresponding to said fourth nodes to a plurality of leaf nodes.

27. (Original) The apparatus of claim 25, wherein said subset of complete fare solutions is a predetermined number of lowest cost fare solutions.

28. (Original) The apparatus of claim 25, wherein said subset of complete fare solutions is an exhaustive set of said complete fare solutions.

29. (Original) The apparatus of claim 25, wherein adding trip information and eliminating partial fare solutions are performed in a recursive manner.

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30. (Original) The apparatus of claim 25, wherein adding trip information and eliminating partial fare solutions are performed in an iterative manner.

31. (Canceled)

32. (Original) The apparatus of claim 25, wherein said partial fare solutions are eliminated based on a refined lower bound.

33. (Original) The apparatus of claim 25, wherein said partial fare solutions are stored in a priority queue.

34. (Original) The apparatus of claim 25, wherein said complete fare solutions are retrieved from a priority queue.

35. (Original) The apparatus of claim 25, wherein adding trip information and eliminating partial fare solutions are performed as part of a branch-and-bound best fare search routine.

36. (Original) The apparatus of claim 25, wherein adding trip information and eliminating partial fare solutions are performed both backward and forward from a destination and origin.